

FIG. 1

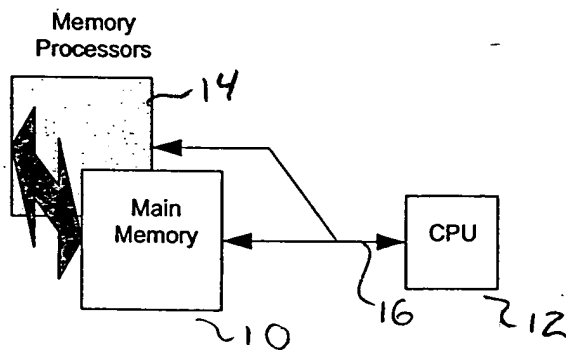
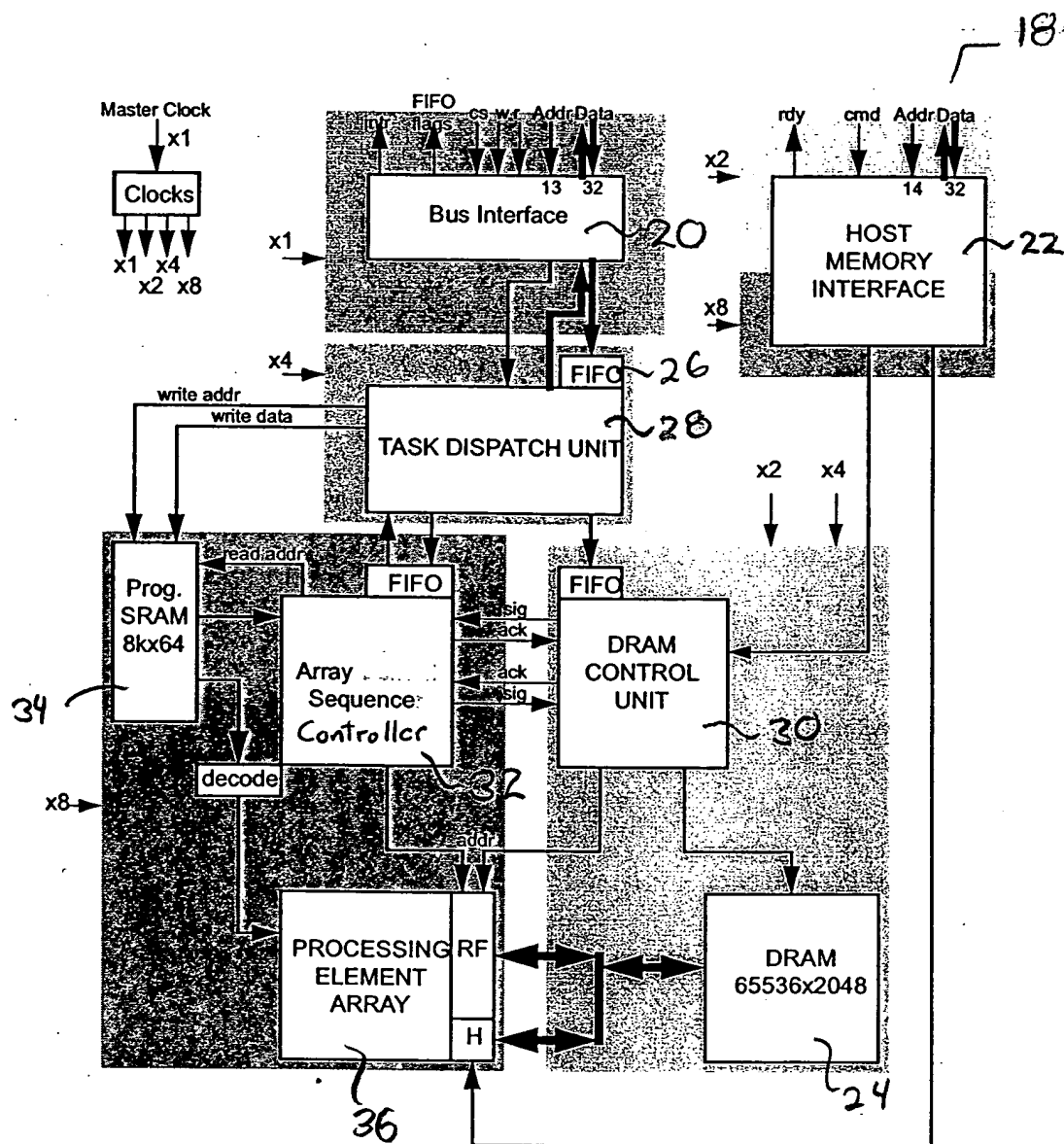


FIG. 2



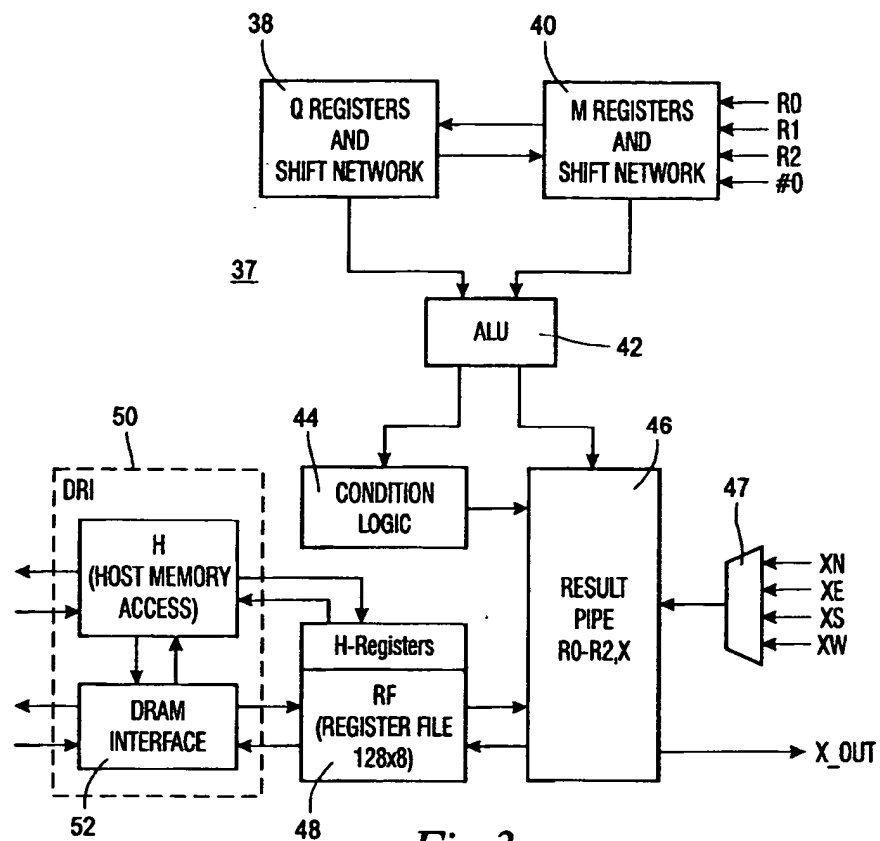


Fig.3

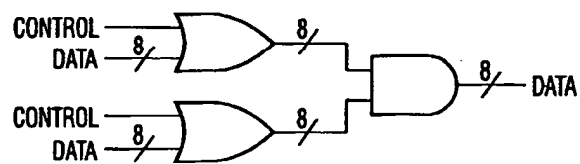
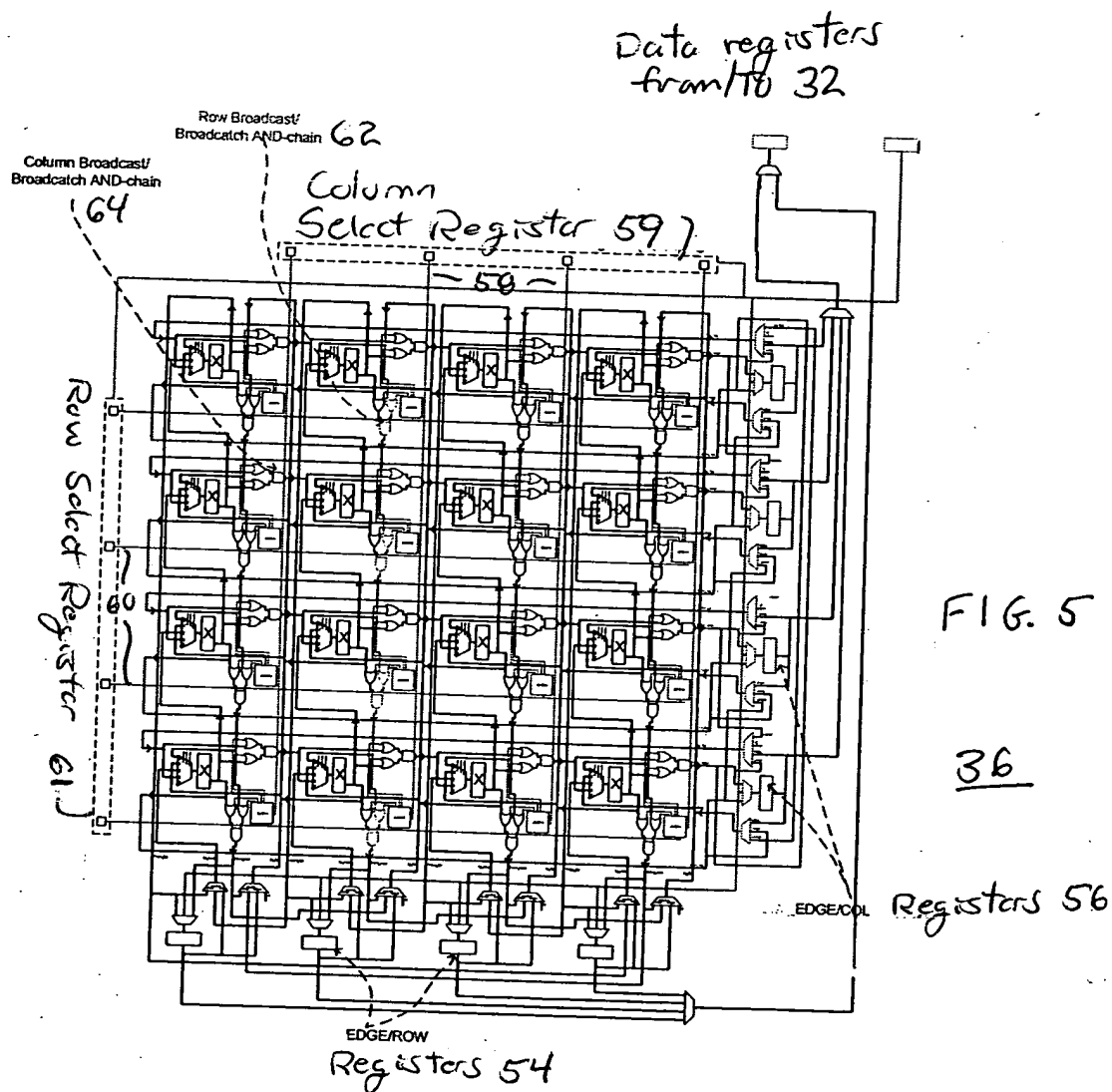
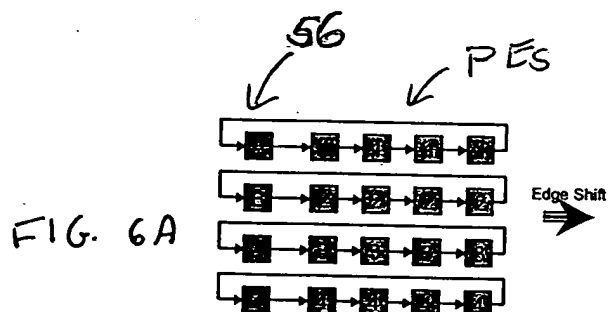
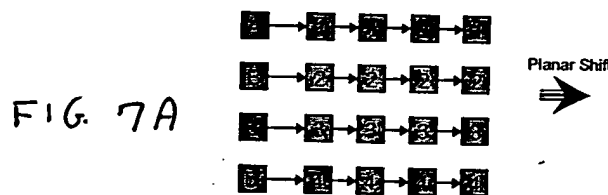
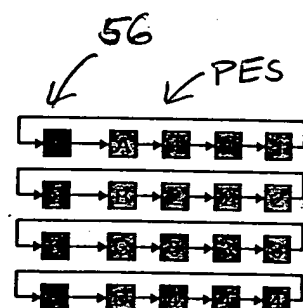


Fig.4

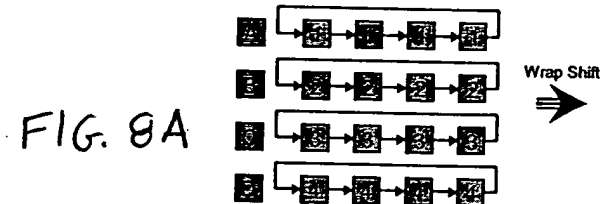
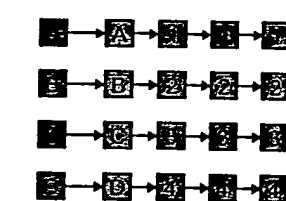




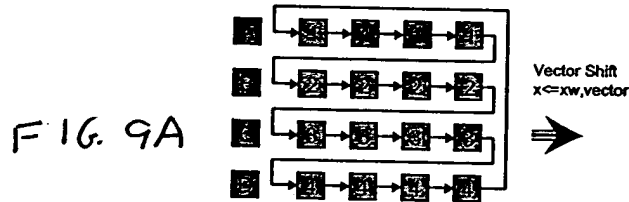
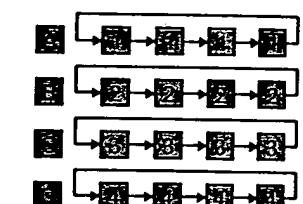
Edge Shift



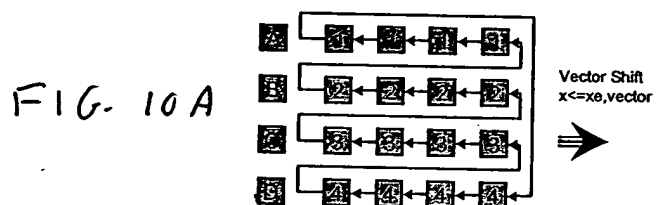
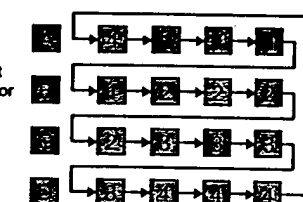
Planar Shift



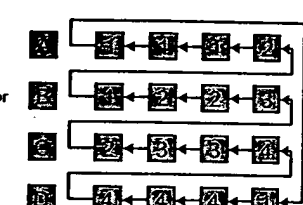
Wrap Shift



Vector Shift $x \leftarrow xw, vector$



Vector Shift $x \leftarrow xe, vector$



Data is broadcast from edge registers

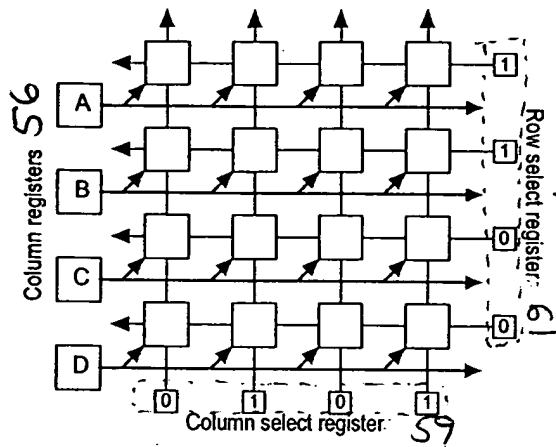


FIG. 11A

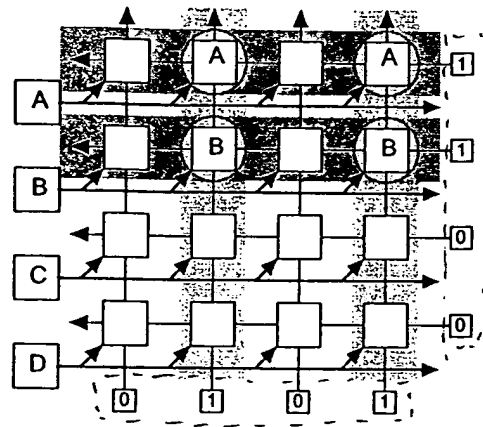


FIG. 11B

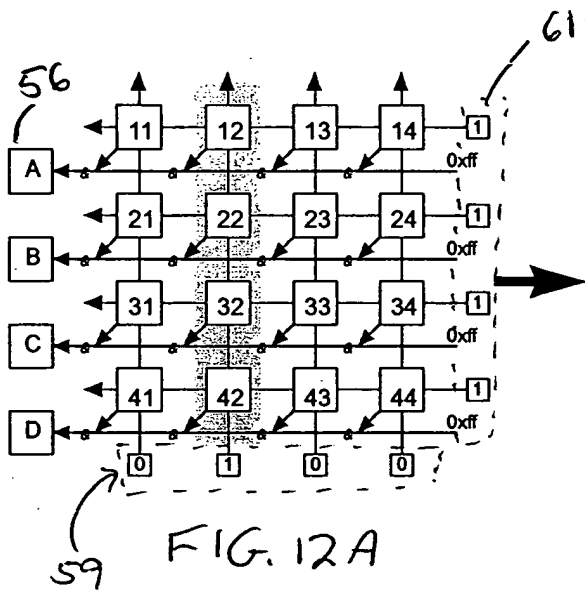


FIG. 12A

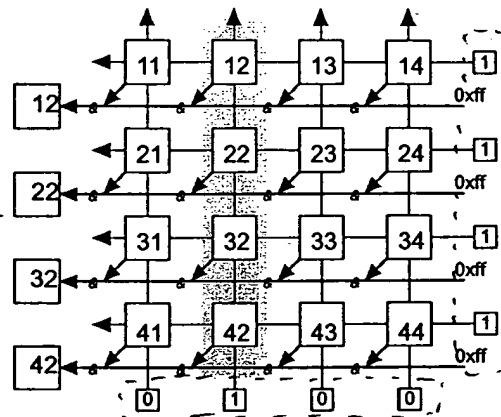


FIG. 12B

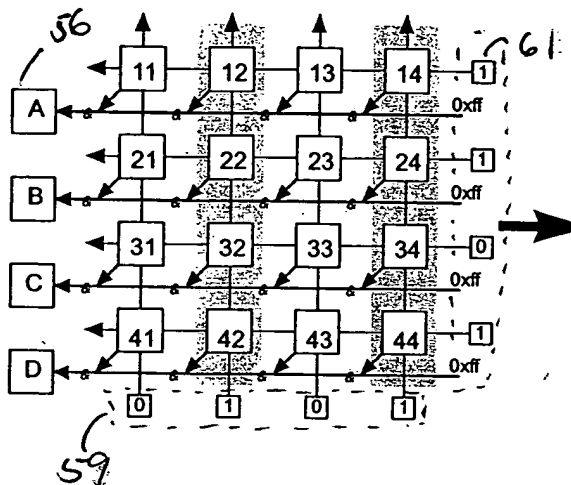


FIG. 13A

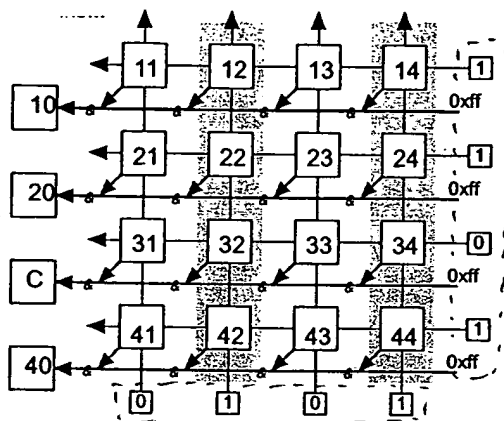


FIG. 13B

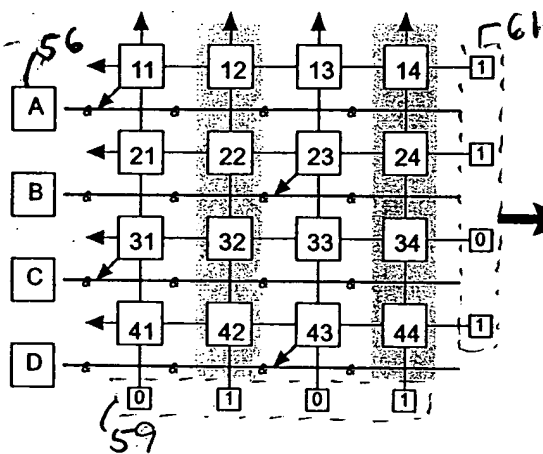


FIG. 14A

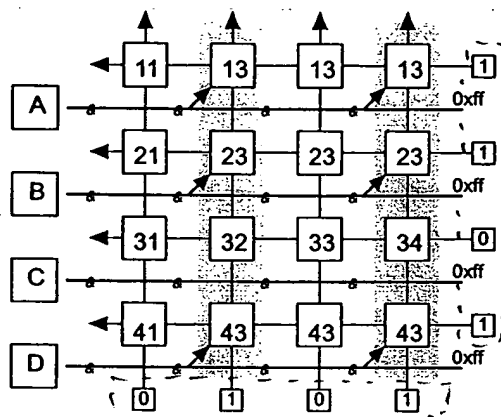


FIG. 14B

a	b	c	d
e	f	g	h
i	j	k	l
m	n	p	q

FIG. 15A

X=	0	1	2	3
C=	3	2	1	0
R=0	a	e	i	m
1	b	f	j	n
2	c	g	k	p
3	d	h	l	q

FIG. 15B

	0	1	2	3	
	3	2	1	0	
	q	l	h	d	Y=3
	p	k	g	c	2
	n	j	f	b	1
	m	i	e	a	0

FIG. 15C

Input Data

a1	b1	c1	d1	e1	f1	g1	h1
a2	b2	c2	d2	e2	f2	g2	h2
a3	b3	c3	d3	e3	f3	g3	h3
a4	b4	c4	d4	e4	f4	g4	h4
a5	b5	c5	d5	e5	f5	g5	h5
a6	b6	c6	d6	e6	f6	g6	h6
a7	b7	c7	d7	e7	f7	g7	h7
a8	b8	c8	d8	e8	f8	g8	h8

Fig 16A

Output Data

a1	a2	a3	a4	a5	a6	a7	a8
b1	b2	b3	b4	b5	b6	b7	b8
c1	c2	c3	c4	c5	c6	c7	c8
d1	d2	d3	d4	d5	d6	d7	d8
e1	e2	e3	e4	e5	e6	e7	e8
f1	f2	f3	f4	f5	f6	f7	f8
g1	g2	g3	g4	g5	g6	g7	g8
h1	h2	h3	h4	h5	h6	h7	h8

Fig 16B

Fig 17A

a1	b1	c1	d1	e1	f1	g1	h1
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Original Data

Fig 17B

h2	a2	b2	c2	d2	e2	f2	g2
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1st Pair Of Shifts

Fig 17C

g3	h3	a3	b3	c3	d3	e3	f3
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2nd Pair Of Shifts

Fig 17D

f4	g4	h4	a4	b4	c4	d4	e4
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3rd Pair Of Shifts

Fig 17E

e5	f5	g5	h5	a5	b5	c5	d5
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4th Pair Of Shifts

Fig 17F

d6	e6	f6	g6	h6	a6	b6	c6
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5th Pair Of Shifts

Fig 17G

c7	d7	e7	f7	g7	h7	a7	b7
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6th Pair Of Shifts

Fig 17H

b8	c8	d8	e8	f8	g8	h8	a8
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7th Pair Of Shifts

0	1	2	3	4	5	6	7
7	0	1	2	3	4	5	6
6	7	0	1	2	3	4	5
5	6	7	0	1	2	3	4
4	5	6	7	0	1	2	3
3	4	5	6	7	0	1	2
2	3	4	5	6	7	0	1
1	2	3	4	5	6	7	0

FIG. 18

Fig 19A: Step 1 - Initialise

Input Data	a1	b1	c1	d1	e1	f1	g1	h1
Output (Transposed) Data								
Count	0	1	2	3	4	5	6	7

Fig 19B: Step 2 – Test(Load a1)

Input Data	a1	b1	c1	d1	e1	f1	g1	h1
Output (Transposed) Data	a1							
Count	0	1	2	3	4	5	6	7

Fig 19C: Step 3 – 1st Decrement

Input Data	a1	b1	c1	d1	e1	f1	g1	h1
Output (Transposed) Data	a1							
Count	-1	0	1	2	3	4	5	6

Fig 19D: Step 4 – 1st Pair Of Shifts

Input Data	h2	a2	b2	c2	d2	e2	f2	g2
Output (Transposed) Data	a1							
Count	-1	0	1	2	3	4	5	6

Fig 19E: Step 5 – Test(Load a2)

Input Data	h2	a2	b2	c2	d2	e2	f2	g2
Output (Transposed) Data	a1	a2						
Count	0	1	2	3	4	5	6	7

Fig 19F: Step 6 – 2nd Decrement

Input Data	h2	a2	b2	c2	d2	e2	f2	g2
Output (Transposed) Data	a1	a2						
Count	-2	-1	0	1	2	3	4	5

Fig 19G: Step 7 – 2nd Pair Of Shifts

Input Data	g3	h3	a3	b3	c3	d3	e3	f3
Output (Transposed) Data	a1	a2						
Count	-2	-1	0	1	2	3	4	5

Fig 19H: Step 8 – Test(Load a3)

Input Data	g3	h3	a3	b3	c3	d3	e3	f3
Output (Transposed) Data	a1	a2	a3					
Count	-2	-1	0	1	2	3	4	5

Fig 19I: Step 9 – 3rd Decrement

Input Data	g3	h3	a3	b3	c3	d3	e3	f3
Output (Transposed) Data	a1	a2	a3					
Count	-3	-2	-1	0	1	2	3	4

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Fig 19J: Step 22 – 7th Pair Of Shifts

Input Data	b8	c8	d8	e8	f8	g8	h8	a8
Output (Transposed) Data	a1	a2	a3	a4	a5	a6	a7	
Count	-7	-6	-5	-4	-3	-2	-1	0

Fig 19K: Step 23 – Test(Load a8)

Input Data	b8	c8	d8	e8	f8	g8	h8	a8
Output (Transposed) Data	a1	a2	a3	a4	a5	a6	a7	a8
Count	-7	-6	-5	-4	-3	-2	-1	0

(NB Not required)

Fig 19L: Step 24 – 8th Decrement

Input Data	b8	c8	d8	e8	f8	g8	h8	a8
Output (Transposed) Data	a1	a2	a3	a4	a5	a6	a7	a8
Count	-8	-7	-6	-5	-4	-3	-2	-1